

REMARKS

Claims 1-8 and 11-19 are all the claims pending in the application. Claim 1 is the only pending independent claim. New claim 20 is added as an independent claim.

Claim Rejections under 35 U.S.C. §§ 102 and 103

Claims 1, 3, 5, and 15-16 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by newly cited Cheetham et al. (US 3,538,362). Applicants respectfully traverse this rejection because Cheetham does not teach or suggest all of the claim recitations.

With respect to independent claim 1 for example, Cheetham does not teach or suggest the claimed AC generator having “an insulating resin provided so that the unidirectionally conducting elements for the positive-electrode and negative-electrode sides are embedded therein.” Although Cheetham teaches a diode rectified alternating current generator having a rectifier 68, the diodes 70, 72 (unidirectionally conducting elements) of the rectifier 68 are not “embedded” within the potting compound 78 (insulating resin), but are instead embedded within the heat sinks 74 and 76 (cooling plates) (see Fig. 7). Cheetham’s structure, much like that shown in prior art Figures 22 and 23 of the Specification, has the problem that if the heat of the diode 70 and the diode 72 are unbalanced, whichever diode has a greater amount of heat cannot be effectively cooled (Specification, para. bridging pages 10 and 11).

In contrast, the fact that the claimed AC generator has a diode package in which the unidirectionally conducting elements for the positive-electrode and negative-electrode sides are embedded within the insulating resin allows either cooling plate to effectively dissipate the heat

from either unidirectionally conducting element of the diode package. As such, Applicants respectfully request that the Examiner withdraw the rejection of claim 1.

In addition, Applicants respectfully request that the Examiner withdraw the rejection of claims 3, 5, and 15-16 at least because of their dependency from claim 1.

Claim 2

Claim 2 is rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable Cheetham in view of Einthoven (US 5,960,068). Applicants request that the Examiner withdraw the rejection of claim 2 at least because of its dependency from claim 1 and because Einthoven does not cure the deficiencies in Cheetham discussed above.

Claim 4

Claim 4 is rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Cheetham in view of Mori et al. (US 5,828,564). Applicants request that the Examiner withdraw the rejection of claim 4 at least because of its dependency from claim 1 and because Mori, which the Examiner alleges teaches a junction between the cooling plate and base that is larger than the junction between the base and the diode, does not cure the deficiencies in Cheetham discussed above.

Claims 6, 11, 13, 17, and 19

Claims 6, 11, 13, 17, and 19 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Cheetham in view of Kawano (JP 5-176539). Applicants request that the Examiner withdraw the rejection of claims 6, 11, 13, 17, and 19 at least because of their dependency from claim 1 and because Kawano, which the Examiner alleges teaches an AC input

terminal that is bent, that is positioned outside the fan, and that extends radially outward, does not cure the deficiencies in Cheetham discussed above.

Claims 7 and 8

Claims 7 and 8 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Cheetham in view of Abadia et al. (US 5,883,450). Applicants request that the Examiner withdraw the rejection of claims 7 and 8 at least because of their dependency from claim 1 and because Abadia, which the Examiner alleges teaches bases soldered to cooling plates, does not cure the deficiencies in Cheetham discussed above.

Claims 12 and 18

Claims 12 and 18 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Cheetham in view of Deverall et al. (US 5,451,823). Applicants request that the Examiner withdraw the rejection of claims 12 and 18 at least because of their dependency from claim 1 and because Deverall, which the Examiner alleges teaches cooling plates extending radially inward with a large number of cooling holes, does not cure the deficiencies in Cheetham discussed above.

Claim 14

Claim 14 is rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Cheetham in view of Yoshinaga (US 5,886,403). Applicants request that the Examiner withdraw the rejection of claim 14 at least because of its dependency from claim 1 and because Yoshinaga, which the Examiner alleges teaches a resin having an inorganic calcined product, does not cure the deficiencies in Cheetham discussed above.

New Claim 20

New claim 20 is added. This claim is direct to a vehicle AC generator having at least one diode package disposed between the cooling plates. The claimed diode package consists of the AC input terminal, the unidirectionally conducting elements, the bases, and the insulating resin. This type of diode package can be easily joined to the cooling plates of a rectifier unit to provide efficient cooling of both positive side and negative side unidirectionally conducting elements.

None of the references cited by the Examiner teach or suggest this structure. For example, Kawano merely teaches a rectifier unit in which the diodes 5a, 5b and cooling fins 1, 2 are both enclosed within a resin cover 8. There is no suggestion of instead imbedding the diodes 5a, 5b and bases 50, but not the cooling fins 1, 2 within the resin 8. Kawano's rectifier unit is enclosed with resin after the assembly of the entire rectifier unit (para. 31), and there is no suggestion to provide an alternative structure.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
Appln. No. 09/705,792

Docket No. Q61526
Group Art Unit 2834

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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PATENT TRADEMARK OFFICE

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 20 is added as a new claim.